

SEQUENCE LISTING

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Ooi, Eng Eong
Chng, Hiok Hee

<120> Diagnostics and Vaccines for SARS

<130> 2577-162

<140> 60/ 486,918

<141> 2003-07-15

<160> 25

<170> PatentIn version 3.2

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cgc aat ggg gca agg cca aaa cag cgc cga ccc caa ggt tta ccc aat	144
Arg Asn Gly Ala Arg Pro Lys Gln Arg Arg Pro Gln Gly Leu Pro Asn	
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aat act gcg tct tgg ttc aca gct ctc act cag cat ggc aag gag gaa	192
Asn Thr Ala Ser Trp Phe Thr Ala Leu Thr Gln His Gly Lys Glu Glu	
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cca gat gac caa att ggc tac tac cga aga gct acc cga cga gtt cgt	288
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Gly Gly Asp Gly Lys Met Lys Glu Leu Ser Pro Arg Trp Tyr Phe Tyr	

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Leu Arg Phe Pro Arg Gly Gln Gly Val Pro Ile Asn Thr Asn Ser Gly
 65 70 75 80

Pro Asp Asp Gln Ile Gly Tyr Tyr Arg Arg Ala Thr Arg Arg Val Arg
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Gly Gly Asp Gly Lys Met Lys Glu Leu Ser Pro Arg Trp Tyr Phe Tyr
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Tyr Leu Gly Thr Gly Pro Glu Ala Ser Leu Pro Tyr Gly Ala Asn Lys
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Glu Gly Ile Val Trp Val Ala Thr Glu Gly Ala Leu Asn Thr Pro Lys
 130 135 140

Asp His Ile Gly Thr Arg Asn Pro Asn Asn Asn Ala Ala Thr Val Leu
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Gln Leu Pro Gln Gly Thr Thr Leu Pro Lys Gly Phe Tyr Ala Glu Gly
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Gly Asn Ser Arg Asn Ser Thr Pro Gly Ser Ser Arg Gly Asn Ser Pro
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Ala Arg Met Ala Ser Gly Gly Gly Glu Thr Ala Leu Ala Leu Leu Leu
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Leu Asp Arg Leu Asn Gln Leu Glu Ser Lys Val Ser Gly Lys Gly Gln
 225 230 235 240

Gln Gln Gln Gly Gln Thr Val Thr Lys Lys Ser Ala Ala Glu Ala Ser
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Lys Lys Pro Arg Gln Lys Arg Thr Ala Thr Lys Gln Tyr Asn Val Thr
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Gln Ala Phe Gly Arg Arg Gly Pro Glu Gln Thr Gln Gly Asn Phe Gly
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 340 345 350

Leu Leu Asn Lys His Ile Asp Ala Tyr Lys Thr Phe Pro Pro Thr Glu
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Gln Arg Gln Lys Lys Gln Pro Thr Val Thr Leu Leu Pro Ala Ala Asp
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Ala Asp Ser Thr Gln Ala
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275	280	285	
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Ser Val Lys Ser Phe Glu Ile Asp	Lys Gly Ile Tyr Gln Thr Ser Asn		
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ttc agg gtt gtt ccc tca gga gat gtt	gtg aga ttc cct aat att aca		960
Phe Arg Val Val Pro Ser Gly Asp	Val Val Arg Phe Pro Asn Ile Thr		
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Ser Val Leu Tyr Asn Ser Thr Phe Phe	Ser Thr Phe Lys Cys Tyr Gly		
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His Val Asp Thr Ser Tyr Glu Cys Asp Ile Pro Ile Gly Ala Gly Ile	
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Cys Ala Ser Tyr His Thr Val Ser Leu Leu Arg Ser Thr Ser Gln Lys	
660 665 670	
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 35 40 45

Ser Asp Thr Leu Tyr Leu Thr Gln Asp Leu Phe Leu Pro Phe Tyr Ser

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Phe Glu Tyr Ile Ser Asp Ala Phe Ser Leu Asp Val Ser Glu Lys Ser		
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Gly Asn Phe Lys His Leu Arg Glu Phe Val Phe Lys Asn Lys Asp Gly		
	180	185 190
Phe Leu Tyr Val Tyr Lys Gly Tyr Gln Pro Ile Asp Val Val Arg Asp		
	195	200 205
Leu Pro Ser Gly Phe Asn Thr Leu Lys Pro Ile Phe Lys Leu Pro Leu		
	210	215 220
Gly Ile Asn Ile Thr Asn Phe Arg Ala Ile Leu Thr Ala Phe Ser Pro		
225	230	235 240
Ala Gln Asp Ile Trp Gly Thr Ser Ala Ala Ala Tyr Phe Val Gly Tyr		
	245	250 255
Leu Lys Pro Thr Thr Phe Met Leu Lys Tyr Asp Glu Asn Gly Thr Ile		
	260	265 270

Thr Asp Ala Val Asp Cys Ser Gln Asn Pro Leu Ala Glu Leu Lys Cys
 275 280 285

Ser Val Lys Ser Phe Glu Ile Asp Lys Gly Ile Tyr Gln Thr Ser Asn
 290 295 300

Phe Arg Val Val Pro Ser Gly Asp Val Val Arg Phe Pro Asn Ile Thr
 305 310 315 320

Asn Leu Cys Pro Phe Gly Glu Val Phe Asn Ala Thr Lys Phe Pro Ser
 325 330 335

Val Tyr Ala Trp Glu Arg Lys Lys Ile Ser Asn Cys Val Ala Asp Tyr
 340 345 350

Ser Val Leu Tyr Asn Ser Thr Phe Phe Ser Thr Phe Lys Cys Tyr Gly
 355 360 365

Val Ser Ala Thr Lys Leu Asn Asp Leu Cys Phe Ser Asn Val Tyr Ala
 370 375 380

Asp Ser Phe Val Val Lys Gly Asp Asp Val Arg Gln Ile Ala Pro Gly
 385 390 395 400

Gln Thr Gly Val Ile Ala Asp Tyr Asn Tyr Lys Leu Pro Asp Asp Phe
 405 410 415

Met Gly Cys Val Leu Ala Trp Asn Thr Arg Asn Ile Asp Ala Thr Ser
 420 425 430

Thr Gly Asn Tyr Asn Tyr Lys Tyr Arg Tyr Leu Arg His Gly Lys Leu
 435 440 445

Arg Pro Phe Glu Arg Asp Ile Ser Asn Val Pro Phe Ser Pro Asp Gly
 450 455 460

Lys Pro Cys Thr Pro Pro Ala Leu Asn Cys Tyr Trp Pro Leu Asn Asp
 465 470 475 480

Tyr Gly Phe Tyr Thr Thr Thr Gly Ile Gly Tyr Gln Pro Tyr Arg Val
 485 490 495

Val Val Leu Ser Phe Glu Leu Leu Asn Ala Pro Ala Thr Val Cys Gly
 500 505 510

Pro Lys Leu Ser Thr Asp Leu Ile Lys Asn Gln Cys Val Asn Phe Asn
 515 520 525

Phe Asn Gly Leu Thr Gly Thr Gly Val Leu Thr Pro Ser Ser Lys Arg
 530 535 540

Phe Gln Pro Phe Gln Gln Phe Gly Arg Asp Val Ser Asp Phe Thr Asp
 545 550 555 560

Ser Val Arg Asp Pro Lys Thr Ser Glu Ile Leu Asp Ile Ser Pro Cys
 565 570 575

Ser Phe Gly Gly Val Ser Val Ile Thr Pro Gly Thr Asn Ala Ser Ser
 580 585 590

Glu Val Ala Val Leu Tyr Gln Asp Val Asn Cys Thr Asp Val Ser Thr
 595 600 605

Ala Ile His Ala Asp Gln Leu Thr Pro Ala Trp Arg Ile Tyr Ser Thr
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Gly Asn Asn Val Phe Gln Thr Gln Ala Gly Cys Leu Ile Gly Ala Glu
 625 630 635 640

His Val Asp Thr Ser Tyr Glu Cys Asp Ile Pro Ile Gly Ala Gly Ile
 645 650 655

Cys Ala Ser Tyr His Thr Val Ser Leu Leu Arg Ser Thr Ser Gln Lys
 660 665 670

Ser Ile Val Ala Tyr Thr Met Ser Leu Gly Ala Asp Ser Ser Ile Ala
 675 680 685

Tyr Ser Asn Asn Thr Ile Ala Ile Pro Thr Asn Phe Ser Ile Ser Ile
 690 695 700

Thr Thr Glu Val Met Pro Val Ser Met Ala Lys Thr Ser Val Asp Cys
 705 710 715 720

Asn Met Tyr Ile Cys Gly Asp Ser Thr Glu Cys Ala Asn Leu Leu Leu
 725 730 735

Gln Tyr Gly Ser Phe Cys Thr Gln Leu Asn Arg Ala Leu Ser Gly Ile
 740 745 750

Ala Ala Glu Gln Asp Arg Asn Thr Arg Glu Val Phe Ala Gln Val Lys
 755 760 765

Gln Met Tyr Lys Thr Pro Thr Leu Lys Tyr Phe Gly Gly Phe Asn Phe
 770 775 780

Ser Gln Ile Leu Pro Asp Pro Leu Lys Pro Thr Lys Arg Ser Phe Ile
 785 790 795 800

Glu Asp Leu Leu Phe Asn Lys Val Thr Leu Ala Asp Ala Gly Phe Met
 805 810 815

Lys Gln Tyr Gly Glu Cys Leu Gly Asp Ile Asn Ala Arg Asp Leu Ile
 820 825 830

Cys Ala Gln Lys Phe Asn Gly Leu Thr Val Leu Pro Pro Leu Leu Thr
 835 840 845

Asp Asp Met Ile Ala Ala Tyr Thr Ala Ala Leu Val Ser Gly Thr Ala
 850 855 860

Thr Ala Gly Trp Thr Phe Gly Ala Gly Ala Ala Leu Gln Ile Pro Phe
 865 870 875 880

Ala Met Gln Met Ala Tyr Arg Phe Asn Gly Ile Gly Val Thr Gln Asn
 885 890 895

Val Leu Tyr Glu Asn Gln Lys Gln Ile Ala Asn Gln Phe Asn Lys Ala
 900 905 910

Ile Ser Gln Ile Gln Glu Ser Leu Thr Thr Thr Ser Thr Ala Leu Gly
 915 920 925

Lys Leu Gln Asp Val Val Asn Gln Asn Ala Gln Ala Leu Asn Thr Leu

930	935	940
Val Lys Gln Leu Ser Ser Asn Phe Gly Ala Ile Ser Ser Val Leu Asn 945 950 955 960		
Asp Ile Leu Ser Arg Leu Asp Lys Val Glu Ala Glu Val Gln Ile Asp 965 970 975		
Arg Leu Ile Thr Gly Arg Leu Gln Ser Leu Gln Thr Tyr Val Thr Gln 980 985 990		
Gln Leu Ile Arg Ala Ala Glu Ile Arg Ala Ser Ala Asn Leu Ala Ala 995 1000 1005		
Thr Lys Met Ser Glu Cys Val Leu Gly Gln Ser Lys Arg Val Asp 1010 1015 1020		
Phe Cys Gly Lys Gly Tyr His Leu Met Ser Phe Pro Gln Ala Ala 1025 1030 1035		
Pro His Gly Val Val Phe Leu His Val Thr Tyr Val Pro Ser Gln 1040 1045 1050		
Glu Arg Asn Phe Thr Thr Ala Pro Ala Ile Cys His Glu Gly Lys 1055 1060 1065		
Ala Tyr Phe Pro Arg Glu Gly Val Phe Val Phe Asn Gly Thr Ser 1070 1075 1080		
Trp Phe Ile Thr Gln Arg Asn Phe Phe Ser Pro Gln Ile Ile Thr 1085 1090 1095		
Thr Asp Asn Thr Phe Val Ser Gly Asn Cys Asp Val Val Ile Gly 1100 1105 1110		
Ile Ile Asn Asn Thr Val Tyr Asp Pro Leu Gln Pro Glu Leu Asp 1115 1120 1125		
Ser Phe Lys Glu Glu Leu Asp Lys Tyr Phe Lys Asn His Thr Ser 1130 1135 1140		

Pro Asp Val Asp Leu Gly Asp Ile Ser Gly Ile Asn Ala Ser Val
1145 1150 1155

Val Asn Ile Gln Lys Glu Ile Asp Arg Leu Asn Glu Val Ala Lys
1160 1165 1170

Asn Leu Asn Glu Ser Leu Ile Asp Leu Gln Glu Leu Gly Lys Tyr
1175 1180 1185

Glu Gln Tyr Ile Lys Trp Pro Trp Tyr Val Trp Leu Gly Phe Ile
1190 1195 1200

Ala Gly Leu Ile Ala Ile Val Met Val Thr Ile Leu Leu Cys Cys
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Met Thr Ser Cys Cys Ser Cys Leu Lys Gly Ala Cys Ser Cys Gly
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Ser Cys Cys Lys Phe Asp Glu Asp Asp Ser Glu Pro Val Leu Lys
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Gly Val Lys Leu His Tyr Thr
1250 1255

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<212> DNA
<213> SARS coronavirus

<220>
<221> CDS
<222> (1)..(588)

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ggc caa act gtc act aag aaa tct gct gct gag gca tct aaa aag cct 96
Gly Gln Thr Val Thr Lys Lys Ser Ala Ala Glu Ala Ser Lys Lys Pro
20 25 30
cgc caa aaa cgt act gcc aca aaa cag tac aac gtc act caa gca ttt 144
Arg Gln Lys Arg Thr Ala Thr Lys Gln Tyr Asn Val Thr Gln Ala Phe
35 40 45

ggg aga cgt ggt cca gaa caa acc caa gga aat ttc ggg gac caa gac 192
 Gly Arg Arg Gly Pro Glu Gln Thr Gln Gly Asn Phe Gly Asp Gln Asp
 50 55 60
 cta atc aga caa gga act gat tac aaa cat tgg ccg caa att gca caa 240
 Leu Ile Arg Gln Gly Thr Asp Tyr Lys His Trp Pro Gln Ile Ala Gln
 65 70 75 80
 ttt gct cca agt gcc tct gca ttc ttt gga atg tca cgc att ggc atg 288
 Phe Ala Pro Ser Ala Ser Ala Phe Phe Gly Met Ser Arg Ile Gly Met
 85 90 95
 gaa gtc aca cct tcg gga aca tgg ctg act tat cat gga gcc att aaa 336
 Glu Val Thr Pro Ser Gly Thr Trp Leu Thr Tyr His Gly Ala Ile Lys
 100 105 110
 ttg gat gac aaa gat cca caa ttc aaa gac aac gtc ata ctg ctg aac 384
 Leu Asp Asp Lys Asp Pro Gln Phe Lys Asp Asn Val Ile Leu Leu Asn
 115 120 125
 aag cac att gac gca tac aaa aca ttc cca cca aca gag cct aaa aag 432
 Lys His Ile Asp Ala Tyr Lys Thr Phe Pro Pro Thr Glu Pro Lys Lys
 130 135 140
 gac aaa aag aaa aag act gat gaa gct cag cct ttg ccg cag aga caa 480
 Asp Lys Lys Lys Lys Thr Asp Glu Ala Gln Pro Leu Pro Gln Arg Gln
 145 150 155 160
 aag aag cag ccc act gtg act ctt ctt cct gcg gct gac atg gat gat 528
 Lys Lys Gln Pro Thr Val Thr Leu Leu Pro Ala Ala Asp Met Asp Asp
 165 170 175
 ttc tcc aga caa ctt caa aat tcc atg agt gga gct tct gct gat tca 576
 Phe Ser Arg Gln Leu Gln Asn Ser Met Ser Gly Ala Ser Ala Asp Ser
 180 185 190
 act cag gca taa 588
 Thr Gln Ala
 195

<210> 6
 <211> 195
 <212> PRT
 <213> SARS coronavirus

<400> 6

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Arg Gln Lys Arg Thr Ala Thr Lys Gln Tyr Asn Val Thr Gln Ala Phe
 35 40 45

Gly Arg Arg Gly Pro Glu Gln Thr Gln Gly Asn Phe Gly Asp Gln Asp
 50 55 60

Leu Ile Arg Gln Gly Thr Asp Tyr Lys His Trp Pro Gln Ile Ala Gln
 65 70 75 80

Phe Ala Pro Ser Ala Ser Ala Phe Phe Gly Met Ser Arg Ile Gly Met
 85 90 95

Glu Val Thr Pro Ser Gly Thr Trp Leu Thr Tyr His Gly Ala Ile Lys
 100 105 110

Leu Asp Asp Lys Asp Pro Gln Phe Lys Asp Asn Val Ile Leu Leu Asn
 115 120 125

Lys His Ile Asp Ala Tyr Lys Thr Phe Pro Pro Thr Glu Pro Lys Lys
 130 135 140

Asp Lys Lys Lys Lys Thr Asp Glu Ala Gln Pro Leu Pro Gln Arg Gln
 145 150 155 160

Lys Lys Gln Pro Thr Val Thr Leu Leu Pro Ala Ala Asp Met Asp Asp
 165 170 175

Phe Ser Arg Gln Leu Gln Asn Ser Met Ser Gly Ala Ser Ala Asp Ser
 180 185 190

Thr Gln Ala
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 <212> DNA
 <213> SARS coronavirus

<220>
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Asn Val Pro Phe Ser Pro Asp Gly Lys Pro Cys Thr Pro Pro Ala Leu	
20 25 30	
aat tgt tat tgg cca tta aat gat tat ggt ttt tac acc act act ggc	144
Asn Cys Tyr Trp Pro Leu Asn Asp Tyr Gly Phe Tyr Thr Thr Thr Gly	
35 40 45	
att ggc tac caa cct tac aga gtt gta gta ctt tct ttt gaa ctt tta	192
Ile Gly Tyr Gln Pro Tyr Arg Val Val Val Leu Ser Phe Glu Leu Leu	
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aat gca ccg gcc acg gtt tgt gga cca aaa tta tcc act gac ctt att	240
Asn Ala Pro Ala Thr Val Cys Gly Pro Lys Leu Ser Thr Asp Leu Ile	
65 70 75 80	
aag aac cag tgt gtc aat ttt aat ttt aat gga ctc act ggt act ggt	288
Lys Asn Gln Cys Val Asn Phe Asn Phe Asn Gly Leu Thr Gly Thr Gly	
85 90 95	
gtg tta act cct tct tca aag aga ttt caa cca ttt caa caa ttt ggc	336
Val Leu Thr Pro Ser Ser Lys Arg Phe Gln Pro Phe Gln Gln Phe Gly	
100 105 110	
cgt gat gtt tct gat ttc act gat tcc gtt cga gat cct aaa aca tct	384
Arg Asp Val Ser Asp Phe Thr Ser Val Arg Asp Pro Lys Thr Ser	
115 120 125	
gaa ata tta gac att tca cct tgc tct ttt ggg ggt gta agt gta att	432
Glu Ile Leu Asp Ile Ser Pro Cys Ser Phe Gly Gly Val Ser Val Ile	
130 135 140	
aca cct gga aca aat gct tca tct gaa gtt gct gtt cta tat caa gat	480
Thr Pro Gly Thr Asn Ala Ser Ser Glu Val Ala Val Leu Tyr Gln Asp	
145 150 155 160	
gtt aac tgc act gat gtt tct aca gca att cat gca gat caa ctc aca	528
Val Asn Cys Thr Asp Val Ser Thr Ala Ile His Ala Asp Gln Leu Thr	
165 170 175	
cca gct tgg cgc ata tat tct act gga aac aat gta ttc cag act caa	576
Pro Ala Trp Arg Ile Tyr Ser Thr Gly Asn Asn Val Phe Gln Thr Gln	
180 185 190	
gca ggc tgt ctt ata gga gct gag cat gtc gac act tct tat gag tgc	624
Ala Gly Cys Leu Ile Gly Ala Glu His Val Asp Thr Ser Tyr Glu Cys	
195 200 205	
gac att cct att gga gct ggc att tgt gct agt tac cat aca gtt tct	672
Asp Ile Pro Ile Gly Ala Gly Ile Cys Ala Ser Tyr His Thr Val Ser	

210 215 220 684

tta tta cgt agt
Leu Leu Arg Ser
225

<210> 8
<211> 228
<212> PRT
<213> SARS coronavirus

<400> 8

Arg Tyr Leu Arg His Gly Lys Leu Arg Pro Phe Glu Arg Asp Ile Ser
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Asn Cys Tyr Trp Pro Leu Asn Asp Tyr Gly Phe Tyr Thr Thr Thr Gly
35 40 45

Ile Gly Tyr Gln Pro Tyr Arg Val Val Val Leu Ser Phe Glu Leu Leu
50 55 60

Asn Ala Pro Ala Thr Val Cys Gly Pro Lys Leu Ser Thr Asp Leu Ile
65 70 75 80

Lys Asn Gln Cys Val Asn Phe Asn Phe Asn Gly Leu Thr Gly Thr Gly
85 90 95

Val Leu Thr Pro Ser Ser Lys Arg Phe Gln Pro Phe Gln Gln Phe Gly
100 105 110

Arg Asp Val Ser Asp Phe Thr Asp Ser Val Arg Asp Pro Lys Thr Ser
115 120 125

Glu Ile Leu Asp Ile Ser Pro Cys Ser Phe Gly Gly Val Ser Val Ile
130 135 140

Thr Pro Gly Thr Asn Ala Ser Ser Glu Val Ala Val Leu Tyr Gln Asp
145 150 155 160

Val Asn Cys Thr Asp Val Ser Thr Ala Ile His Ala Asp Gln Leu Thr

165

170

175

Pro Ala Trp Arg Ile Tyr Ser Thr Gly Asn Asn Val Phe Gln Thr Gln
 180 185 190

Ala Gly Cys Leu Ile Gly Ala Glu His Val Asp Thr Ser Tyr Glu Cys
 195 200 205

Asp Ile Pro Ile Gly Ala Gly Ile Cys Ala Ser Tyr His Thr Val Ser
 210 215 220

Leu Leu Arg Ser
 225

<210> 9
 <211> 29711
 <212> DNA
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